REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	**2. REPORT TYPE**	**3. DATES COVERED** *(From - To)*
14-02-2005	FINAL	

4. TITLE AND SUBTITLE
Unmanning the Battlespace: The Principles of the Future War

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
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5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Joint Military Operations Department
Naval War College
686 Cushing Road
Newport, RI 02841-1207

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT
Distribution Statement A: Approved for public release; Distribution is unlimited.

13. SUPPLEMENTARY NOTES A paper submitted to the faculty of the NWC in partial satisfaction of the requirements of the JMO Department. The contents of this paper reflect my personal views and are not necessarily endorsed by the NWC, the Department of the Navy, or the Dept of the Air Force.

14. ABSTRACT

Due to drastic changes in the nature of warfare in the near future, the current rules will no longer apply. Considerable changes to the U.S. Military's Principles of War are required if the U.S. expects its military doctrine to stay ahead of or even with technological advancements. As the battlespace is increasingly unmanned, the current principles of war and definitions used by the U.S. Armed Forces slope toward the obsolete, require reevaluation, and necessitate an overhaul to adapt to the future nature of war.

Difficulties remain in creating the information infrastructure, the unmanned vehicles, and the robotic warriors of future battle but, there is a difference between hard and impossible. It is not impossible to unman the battlespace and in doing so reduce risk while operating in a combat environment. The unmanning of the battlespace is a transformation of the highest order and requires an equally revolutionary transformation in doctrinal thought.

Since the battlespace revolution is predictable, now is the time to plan for the inevitable capabilities and now is the time to build the doctrine by which the U.S. military will conduct future conflicts. The first step in building future doctrine is reassessing and redefining the current U.S. Principles of War.

15. SUBJECT TERMS
Principles of War in Unmanned Battlespace

16. SECURITY CLASSIFICATION OF:			**17. LIMITATION OF ABSTRACT**	**18. NUMBER OF PAGES**	**19a. NAME OF RESPONSIBLE PERSON**
c. REPORT	**b. ABSTRACT**	**c. THIS PAGE**			Chairman, JMO Dept
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED		24	**19b. TELEPHONE NUMBER** *(include area code)* 401-841-3556

Standard Form 298 (Rev. 8-98)

NAVAL WAR COLLEGE
Newport, R.I.

UNMANNING THE BATTLESPACE: THE PRINCIPLES OF THE FUTURE WAR

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Maritime Operations exploring the topic:

The need to redefine the principles of war as the battlespace progresses toward being unmanned.

The contents of this paper reflect my personal views and are not necessarily endorsed by the Naval War College, the Department of the Navy, or the Department of the Air Force. Any scenarios and examples stemming from those scenarios are fictitious. The scenarios do not represent the opinion or policies of the U. S. Government or its departments.

Signature: _____

Date: 14 February 2005

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Professor Barker

Abstract

UNMANNING THE BATTLESPACE:

THE PRINCIPLES OF THE FUTURE WAR

Due to impending drastic changes in the nature of warfare, the current rules will no longer apply. Considerable changes to the U.S. Military's Principles of War are required if the U.S. expects its military doctrine to stay ahead of or even with technological advancements. As the battlespace is increasingly unmanned, the current principles of war and definitions used by the U.S. Armed Forces slope toward the obsolete, require reevaluation, and necessitate an overhaul to adapt to the future nature of war.

Difficulties remain in creating the information infrastructure, the unmanned vehicles, and the robotic warriors of future battle but, there is a difference between hard and impossible. It is not impossible to unman the battlespace and in doing so reduce risk while operating in a combat environment. The unmanning of the battlespace is a transformation of the highest order and requires an equally revolutionary transformation in doctrinal thought.

Since the battlespace revolution is predictable, now is the time to plan for the inevitable capabilities and now is the time to build the doctrine by which the U.S. military will conduct future conflicts. The first step in building future doctrine is reassessing and redefining the current U.S. Principles of War.

The Battlespace of the Future

Those who forget the past are doomed to repeat it. Those who forget to think about the future are doomed to neglect it.
Stuart Wells, Choosing the Future

Hostilities are about to break out on the Korean Peninsula[1]. The North Korean regime is desperate to maintain control amid internal unrest spawned by years of famine. In this conflict, the probability for the use of chemical and biological agents is high and, if the fight goes poorly for the North Koreans, nuclear weapons. With a drawdown of coalition troops nearly complete, a free and democratic Iraqi government is in place and strengthening. Iran has succumb to change and elected a moderate secular government. Almost immediately, Iran's new government entered into an agreement with Europe and the U.S. abandoning their nuclear weapons program in return for foreign trade and investments. The Israeli and Palestinian peace has survived two changes of governmental leadership on both sides. Due to the blossoming peace in the Middle East and elsewhere in the world, the U.S. is reducing the numbers of its troops worldwide and redeploying most of its forces back to the Continental U.S. in an attempt to cut costs in infrastructure, transportation, and personnel. The North Korean regime is the last member of the "Axis of Evil" and a decision to counter the North Koreans in an effort to "clean the board" was made by the President of the U.S.

The Commander of Pacific Command has been tasked to prepare, plan, and execute the direction given by the president. This is a daunting task for any commander, so COMPACOM and her staff refer to the U.S. Military's Joint Doctrine and Principles of War to begin the planning[2]. Since the use of armed force can rarely satisfy each principle equally, the COMPACOM knows she needs to balance the principles of war in opposition to each other to come up with the best plan executable on the President's time line while minimizing risk. In this

future scenario, a transformation of the U.S. forces has inundated the battlespace with unmanned aerial, naval, and ground vehicles capable of global travel; robotic warriors capable of moving through all forms of terrain and conditions and controlled from great distances; and global command and control information systems watching and managing the global battlespace. The PACOM Headquarters is now located in the Pentagon along with the other combatant commands. As the battlespace becomes unmanned, the current principles of war and their definitions used by the U.S. Armed Forces will become obsolete, require reevaluation, and necessitate an overhaul to adapt to the future nature of war.

The Principles, Their Definitions, and the Impact of Unmanning the Battlespace

The "bedrock" of joint doctrine is the set of principles of war adopted by the U.S. Armed Forces[3]. The principles are objective, offensive, mass, economy of force, maneuver, unity of command, security, surprise, and simplicity. The U.S. Principles of War were developed over time by a thorough review of the lessons learned by the U.S. Armed Forces, its allies, its adversaries and other militaries' actions throughout history. In addition, the U.S. Military's Principles of War are equally rooted in the study of the American way of war. The American way of war is such that the U.S. society expects open access to the status and progression of any military use, a full accountability of resources used or sacrificed, and demands extreme risk reduction for its military personnel included in planning. These expectations include a mobilization only when absolutely necessary and a quick redeployment and demobilization once the stated objectives are achieved[4].

The principles of war are a set of guidelines that, if used skillfully, can maximize the combat power of the U.S. against an enemy while minimizing the risk associated with military operations[5]. Today's manned battlespace (in essence the same type of battlespace in which

Clausewitz, Napoleon, and Eisenhower had to contend) produces a zero-sum equation when balancing maximum combat power against minimal risk. The principles of war and the doctrine which follows are based on history[6]. For example, in today's conventionally manned battlespace, increasing combat power adds a greater amount of risk. This case is graphed in figure 1. This is the equation from which today's principles of war have been developed.

Fig. 1 Power vs. Risk (traditional)

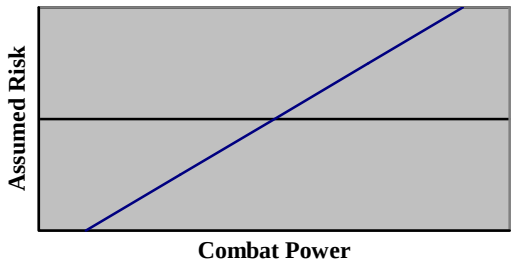
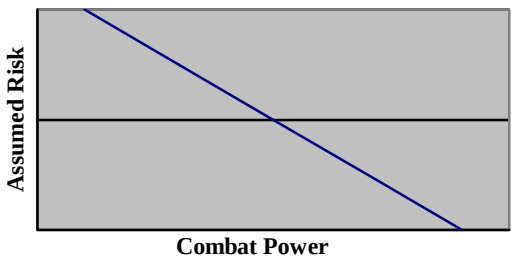


Fig. 2 Power vs. Risk (unmanned)



There is a point of diminishing returns where the value of the object is no longer worth the risk assumed in achieving the objective. However, through technological advancements, the balancing of combat power against risk is changing into a non-zero sum equation. The principles of war do not necessarily take into account future capabilities and therefore require periodic revalidation and adjustment. Unfortunately, the default position is to reevaluate the principles after the new warfare environment is established and the old principles failed. The rate at which technology advances forces the U.S. Military to be innovative in approaching the use of those technological advancements. Innovation in military affairs requires looking ahead versus behind for answers. In the future, unmanning the operational battlespace will provide planners the ability to commit combat power to an operation while risk remains constant or is reduced. The potential exists, as technologies continue to improve, where risk is reduced to the point it is considered negligible. This case is depicted graphically in figure 2. Since the premise of the U.S. Military's Principles of War is radically changed, the principles themselves require a

comprehensive change. The U.S. military is best served if it conceptualizes these changes now in anticipation of when the technology supports the new principles vice waiting until the technology dominates and then changing.

Principle: Objective

According to Joint Publication 1, the purpose of the principle of objective is to direct every military operation toward a clearly defined, decisive, and attainable goal. Identifying the goal is a means by which the commander can judge the force required for achievement and the importance of the goal to the overall military campaign[7]. For the U.S. society and military, the objective must be something which is within reach based on reasonable amounts of effort expended and risk assumed. The military adheres to this principle because the force is limited and the "attainable goal" is related to the factor of time. U.S. society expects a victory from a small force which is timely, a rapid redeployment, and equally timely demobilization.

In unmanning the battlespace, the commander no longer needs to weigh the risk to the human force. When the battlespace is unmanned, she, (the COMPACOM in the scenario) is not necessarily restricted by the factors of risk, force, and time. The human capital investment is minimized to the negligible and the risk and force factors, by today's standards, are equally reduced to the negligible. Additionally when the human is removed, time is eliminated as a significant factor for consideration. The American society will not be as interested or as demanding of a redeployment and demobilization of an unmanned force. Therefore, if the underlying basis is changed, the principle must be changed. There still needs to be an objective for the military operation but it is no longer required to be decisive. The new principle of "objective" is defined as "directing military operations in main and secondary efforts toward obtainable parallel goals producing a desired synergistic effect on the enemy's behavior".

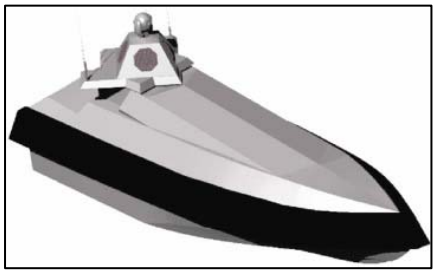
"Objective" no longer requires a decisive action since decisive action may not be consistent with the strategy and is no longer restrained by time and risk.

Principle: Offensive

According to Joint Publication 1, the purpose of the principle of offensive is to direct military action to seize, retain, and exploit the initiative[8]. This principle is directly from Clausewitz where he discusses the need for offense to win the war but confesses time and space hinder the concept. The factors of time and space force the introduction of defense as a necessary evil for troops to rest and to provide protection for the rear area[9]. It takes a large force a period of time to move a great distance, to get into a position in which to maneuver against the enemy's positions and then attempt to gain the initiative via offensive action. This principle holds true today. The principle of offensive in the unmanned battlespace is applied differently.

Unmanned aerial combat (bomber and fighter aircraft), unmanned naval vessels (surface and subsurface), and transports carrying unmanned ground vehicles are capable of being stealthily loaded and launched from the Continental U.S. under the cover of darkness from locations on its interior. The unmanned vehicles' destinations and targets in North Korea (for this scenario) and other locations in the joint operating area are programmed in advance. Using the instantaneous global command and control system, the unmanned aircraft and ships can be monitored and controlled remotely from the U.S. Remote control is a great advantage since the use of weapons of mass destruction is nearly guaranteed. While en route, those unmanned vehicles could loiter wherever necessary to maintain covertness until the desired time and, without placing a boot on the ground or on deck in the joint operating area, go on the offense and maintain that offense indefinitely. These

Radix Unmanned Naval Surface Vessel



unmanned vehicles can operate in an environment which humans would not normally risk, such as low level, loitering over a target, collect intelligence in an dangerous area where personnel would not be asked to go, remain underwater indefinitely, used for one way missions, etc. The advantages of the unmanned force overcome Clausewitz' concerns about pausing the offense. The new principle replacing offense is "Persistence" and defined as "actions seizing, retaining, and exploiting the initiative placing constant and continuous strain on the enemy's defenses."

Principle: Mass

The purpose of the principle of mass is to concentrate the effects of combat power at a place and time to achieve decisive results[10]. The Clausewitzian prescription has friendly forces maneuver and "mass" on a weaker force causing a quick decisive victory against an enemy operational center of gravity[11]. Due to its lineage, this principle is associated with a quantifiably large force for the principle to be achieved. Recently, the emphasis is on the effects produced by the forces and not necessarily the quantity of the forces in the battle. In the unmanned battlespace the enemy's defeat via a thousand pinpricks is achievable and more palatable where one crushing blow is deemed too destructive. The quick decisive victory is less important than the effects produced. The confusion associated with the definition of this principle continues as the battlespace becomes unmanned. Therefore, this principle fades from existence as the direct and indirect effects of all operations are decidedly more important than the battle which instantaneously dismantles the enemy's military. The forces used to produce effects may or may not concentrate in their employment. In an environment where unmanned vehicles, precision

Boeing's Unmanned Combat Aerial Vehicle

weaponry, and instantaneous information flow utilizing a small number of forces produce dispersed and far reaching effects once associated with a large quantity of forces meeting on a great field of battle. The principle of mass is renamed as "influence" and defined as the "organization and employment of combat power achieving desired direct and indirect effects accomplishing required results." This definition removes the inference to combat force quantity which, in the future, is unrelated to the effects produced. Unmanning the battlespace reduces the human cost of operations and "influence" is achieved through several different avenues. Some avenues may require a lengthy time to accomplish but achieve the desired behavioral change in the enemy. When the friendly human cost is a heavy factor in planning military operations, mass is required to shorten the length of the operation and ensure its cost is worth the value of the objective obtained.

In the introductory scenario, the COMPACOM may desire and plan for a relatively small force of weapon systems which are stealthy and precision capable. She may direct those forces against command and control; weapons of mass destruction (WMD) production, maintenance, and storage sites; and logistics nodes. The small force could not possibly be considered as "mass" in the traditional sense, however, the force's "influence" in conducting this operation is the goal. "Influence" is the principle proving to the enemy leadership that any and all enemy centers of gravity remain in constant danger without risking a single friendly force member.

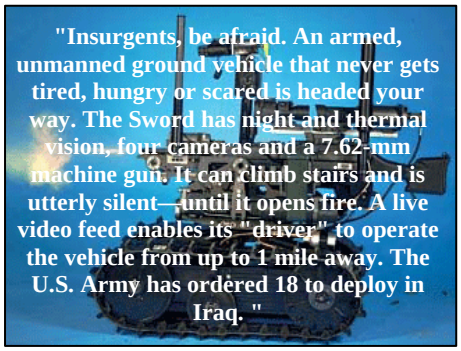
Principle: Economy of Force

According to Joint Publication 1, the purpose of the principle of economy of force is to allocate the minimum essential combat power to secondary efforts[12]. The principle of economy of force in its current form advises the commander to protect against diffusing or diluting her forces operating against the main and secondary objectives. This principle is the realization that

resources which define combat power are finite. Economy of force is also a warning against overconfidence that operations conducted in parallel will produce a synergistic effect. Parallel operations can produce synergy but only if the appropriate influence is maintained. As discussed earlier, the principle of influence has replaced mass. In the current human dominated battlespace, the capability for the forces to be at every location with endless persistence does not exist. The human body is incapable of operations of infinite duration, but the human limitation is overcome in a battlespace dominated by unmanned vehicles and robotic warriors controlled at a distance via a global command and control net.

In the future case, as in the original scenario, the limitations of risk, the human body, and space are overcome. The risks of parallel secondary operations are no longer as much of a concern because a loss is a loss in equipment only. With a global command and control net, the command and control personnel are removed from the battlefield, further reducing the risk to personnel. The elimination of the human factor allows persistence across the battlespace for nearly an indefinite time. Taking the benefits of unmanning the battlespace into account, economy of force should be removed from the principles as its own entity and encompassed in the definition of objective where the goals of the main and secondary efforts and the synergistic effects produced by parallel operations determine how to conduct military operations.

Foster-Miller Talon Weaponized Robot



Principle: Maneuver

The purpose of the principle of maneuver is to place the enemy in a position of disadvantage through the flexible application of combat power[13]. This principle is Sun Tzu-ian

in nature as it directs the planner to fight and win the battle prior to the engagement[14]. In today's battlespace environment, massive forces maneuver while the enemy counters. For maneuver to be conducted effectively it must be accomplished quickly, however the limitations of personnel hamper this principle. Personnel on the move, whether on ground, sea, or air have physical limitations hindering the benefits gained by rapid or continuous maneuver. In the unmanned battlespace where the vehicles are controlled from a distance by a crew of personnel capable of taking breaks, swapping out, insulated from the environmental conditions of heat, cold, rain, sun, etc., maneuver can be accomplished continuously[15]. Maneuver will continue to be an important principle in the application of military operations in the future battlespace. The principle of maneuver's definition will be modified slightly to "placing the enemy in a position of disadvantage through continuous flexible application of combat power across all mediums in the battlespace." This definition catches the essence of the unmanned battlespace; the continuous application of land, sea, and air unmanned forces controlled from a distance.

In the Korean Peninsula scenario, the COMPACOM has the advantage of infinite and continuous fulfillment of the principle of maneuver, even in a WMD contaminated environment. With the ability to maneuver at will, the COMPACOM is able to have her forces exhibit maneuver through or use areas historically considered denied in the battlespace. Continuous maneuver in the battlespace will allow the COMPACOM to apply pressure to the enemy personnel and resources traditionally considered out of reach. The effect is a degrading of the enemy forces and leadership morale through the conduct of continuous attack from all angles in and through all mediums.

Principle: Unity of Command

According to Joint Publication 1, the purpose of the principle of unity of command is to ensure unity of effort under one responsible commander for every objective[16]. On the battlefield of the past where the battle progressed quickly and communication was such that the highest echelons of command could not receive "real time" information, this principle was critical. "Unity of command" directs the commander to clearly define the chain of command from the commander to the operational commanders to the tactical commanders. All the services, to include the Coast Guard, also embrace some form of the operational tenant of centralized control and decentralized execution[17].

In the case of centralized control and decentralized execution, the commander communicates her intent and then allows the subordinate commanders to fulfill that intent the best way they know. This principle and associated tenant prevent the traditional operational or theater commander from hindering the progress of a tactical effort (figure 3). In the past, the delay in obtaining data, analyzing it for useful information, and communicating operational or tactical direction was so drawn out that direction from the upper echelons arrived too late to be of tactical benefit. In the unmanned battlespace, the force will be smaller and the global space between tactical unit and supreme command is physically just as great but overcome through virtually instantaneous communications.

Today, unmanned aerial vehicles operate in a remote location half way around the world while the operator is in one location in the U.S. The live video feed from that same UAV can be seen and analyzed at another location by the theater commander or higher commander. If that UAV is armed, a live voice connection between the commander and the operator allow the commander to directly call the target and when to take the shot.

Fig. 3 Traditional Unity of Command

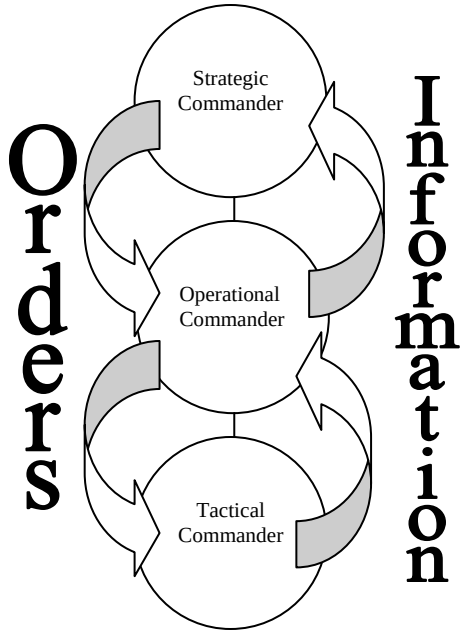
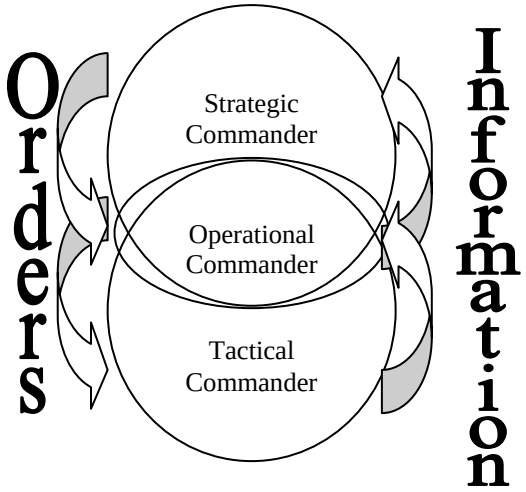


Fig. 4 Command in Unmanned Battlespace



With unmanned vehicles the capability exists where the operational or strategic commander can be the tactical leader. On the battlefield of the future and as a result of emerging capabilities coupled with an ever increasing demand for accountability at the highest level, tactical targets will exist which demand strategic level leadership intervention. As a result, the organizational structure will naturally flatten; strategic leadership, operational, and tactical levels of leadership will collapse upon themselves; and "unity of command" is achieved by default (figure 4). The PACOM commander becomes the commander at all levels, her intent is clear, and instantaneous communication provides her with the ability to look into and manipulate the battle as she sees fit. The key is her intervention will not endanger friendly human forces, the factors of space and time are overcome, and the force is unmanned. The unity of command principle no longer exists and is renamed as the principle of "focus". The definition is "the organizational structure, level of direction, and leadership effort appropriately constructed and regulated for the current situation."

Principle: Security

According to Joint Publication 1, the purpose of the principle of security is to deny the enemy the ability to acquire the advantage, unexpectedly[18]. In the traditional sense, this principle deals with preventing the enemy from having access to friendly personnel or equipment. Classically, this principle is at odds with nearly every other principle. Security usually extends the battlespace to use the protection resulting from placing distance between the enemy and friendly forces. This extension of the battlespace is either at odds with or complicates the principles of unity of command, surprise, simplicity, mass, offensive and economy of force. In the scenario at the beginning, the high probability the enemy will use WMD, to include nuclear weapons, complicates the planning nearly beyond comprehension. Basing of forces; operating in a nuclear, biological, or chemical environment; and the equipping the force for personal protection and decontaminating equipment will complicate the planning effort for the COMPACOM to the point where the number of variables approaches infinity. In the unmanned battlespace, the commander will be able to address each one of these concerns in parallel as individual entities versus serially where each concern amplifies the other. The contaminated unmanned vehicles are moved out of the theater where attack against and defense of the human in the equation complicates the matter of managing the battle. The principle of security in the unmanned battlespace principles of war has the same name however the definition changes slightly to, "denying the enemy the ability to acquire the advantage unexpectedly by way of defense in depth through the use of remoteness and global communications."

Northrop X-47 Joint UCAV

Principle: Surprise

The purpose of the principle of surprise is to strike the enemy at a time or place or in a manner for which it is unprepared[19]. In the battlefield environment of today, employing the principle of surprise alleviates the need for a massive quantity of forces. Unfortunately, in the manned battlespace of today where there is continuous live media coverage, surprise is difficult to achieve. The U.S. military forces use a large and long logistics infrastructure which requires a great deal of time to establish prior to commencing with the engagement. In the unmanned battlespace, surprise is much more readily achieved. Forces launched and controlled from the U.S. appear as normal training operations. Once the operation commences, the unmanned force affords the commander the ability to operate in an environment considered too risky for manned missions such as low altitude air attack, littoral naval missions, and day as well as night ground operations. Since the unmanned force infrastructure remains at home or at a great distance there are fewer indicators hindering surprise. Additionally, the movement of command and control and headquarter units will not be required and can add to the surprise of the operation.

COMPACOM in the example is capable of commencing the operation while headquartered at the Pentagon with unmanned air forces launching from the U.S., attacking in theater, using multiple lines of approach, and returning to the U.S. while the next attack is being conducted. Additionally, unmanned naval forces maneuvering individually or as a group establish blockade operations both on the surface, below the surface, and in the air[20]. Since unmanned vehicles operating in all mediums are built stealthier than conventional forces, they are inherently more "surprising" than other forces[21]. Finally, the COMPACOM, will be able to use modes, mediums, and approaches which the enemy would not expect to be used by manned

vehicles. Surprise in the unmanned battlespace continues as one of the most important principles of war and retains the same definition.

Principle: Simplicity

According to Joint Publication 1, the purpose of the principle of simplicity is to prepare clear, uncomplicated plans and concise orders to ensure thorough understanding[22]. This principle accounts for the human factor in the battlespace and tries to limit the impact of the fog inherent in the conduct of war[23]. The principle of simplicity reminds the commander that rarely do plans proceed without complication and the most complex of plans are more prone to failure than plans which are simple. Joint operations necessitate simplicity in the planning process. When employing forces from several services against a common objective, the plans must be translated into the different services' languages and understood by all the forces conducting the operation. In the unmanned battlespace, the principle of simplicity is relaxed. When weapon systems which are precision capable can be controlled instantaneously by few over great expanses of distance, the plans are more complex. However, the potential benefits that can be obtained by complex plans begin to outweigh the risk of operational failure. In the unmanned battlespace risk is reduced, failure due to the human factor is reduced, and the fog of war is minimized by instantaneous communication. The principle of simplicity remains the same but the application and meaning of uncomplicated is changed from today's meanings.

MillenWorks Unmanned Ground Vehicle

In the original scenario, the COMPACOM has a difficult task of meeting this principle of war. Every plan is complex due to the potential use of WMD by the enemy. The complexity comes in the protection of the friendly forces. In the case of the unmanned battlespace, the

commander has the ability to reduce considerations for personal protection factors in the planning. In fact, unmanned vehicles will be able to operate in contaminated environments where personnel would not. Unmanning the battlespace and controlling the fight from a distance will simplify the planning and operating environment. There is also a potential for the adversary to be deterred from using WMD for the mere fact that WMD will not hamper operations. There is a need for decontamination plans established for contaminated unmanned vehicles transiting back to the U.S. but it is much easier to work those plans internal to the U.S. versus having to involve a host nation.

The New Governing Principles of War and the End of War as We Know It

> *The real issue is whether transformation happens belatedly - in a crisis atmosphere - or with foresight - in a calm and considered atmosphere; whether the transformation agenda is set by more prescient competitors or derives from one's own point of view about the future; whether transformation is spasmodic and brutal or continuous and peaceful.*
>
> *Gary Hamel and C.K. Prahalad,*
> *Competing for the Future*

Difficulties remain in creating the information infrastructure, the unmanned vehicles, and the robotic warriors of future battle but, there is a difference between hard and impossible. It is not impossible to unman the battlespace and in doing so reduce risk while still operating in a combat environment. The unmanning of the battlespace is a transformation of the highest order and requires an equally revolutionary transformation in doctrinal thought. This technological revolution is predictable and now is the time to plan for the capabilities and to build the doctrine by which the U.S. will conduct future conflicts. The first step in building future doctrine is reassessing and redefining the U.S. principles of war (figure 5).

War will continue as a means by which to execute political policy and, though this Korea scenario sounds fanciful, it is possible. Additionally, the citizens of the U.S. will expect their

military to expend the resources to fight and win wars. The dichotomy in American society is the society's equally strong expectation to limit risk and, in theory casualties.

Figure 5 - Comparison of Current and Unmanned Battlespace Principles of War			
Current Principle	Current Definition	Unmanned Battlespace Principle	Unmanned Battlespace Definition
Objective	Direct every military operation toward a clearly defined, decisive, and attainable objective	Objective	Directing military operations in main and secondary efforts toward obtainable parallel goals producing a desired synergistic effect on the enemy's behavior.
Surprise	Strike the enemy at a time or place or in a manner for which it is unprepared.	Surprise	Strike the enemy at a time, place, or in a manner for which it is unprepared.
Offense	Actions to seize, retain, and exploit the initiative.	Persistence	Actions seizing, retaining, and exploiting the initiative placing constant and continuous strain on enemy defenses.
Mass	Concentrate the effects of combat power at the place and time to achieve decisive results.	Influence	Organization and employment of combat power achieving desired direct and indirect effects accomplishing required results.
Maneuver	Placing the enemy in a position of disadvantage through the flexible application of combat power.	Maneuver	Placing the enemy in a position of disadvantage through the continuous flexible application of combat power across all mediums in the battlespace.
Security	Never permitting the enemy to acquire unexpected advantage.	Security	Denying the enemy the ability to acquire the advantage unexpectedly by way of defense in depth using remoteness and global communications.
Unity of command	Ensuring unity of effort under one responsible commander for every objective.	Focus	Organizational structure, level of direction, and leadership effort appropriately constructed and regulated for the current situation.
Simplicity	Preparing clear, uncomplicated plans and concise orders to ensure thorough understanding.	Simplicity	Preparing clear, uncomplicated plans and concise orders to ensure thorough understanding.
Economy of Force	Allocating minimum essential combat power to secondary efforts.	(merged)	

In the past these two opposing forces were reconciled by the society enduring the "acceptable loss" theory where the object was worth the losses incurred whether those losses were lives, national treasure, or both. In the final chapter of his text on operational warfare, Vego does much to diminish the effects technological advances play in the shaping of the nature of war and operational art[24]. However, Vego spends his time focusing on the impact of mainly information availability and increased speed of communication due to technology. Vego's battlespace in his

final chapter does not take into account unmanning and how prolific that event is to future warfare.

Never, as Vego points out, has a technological advance which has instantaneously changed the nature of warfare[25]. This revolution has not occurred because each technological advance in the past was designed to overcome the disadvantages of the factors of time, space, or force individually. Unmanned aerial, naval, and ground vehicles, with precision weaponry, connected by a global command and control system address all three factors at once and do produce the synergistic effect that Vego calls for through the use of the "diverse and cumulative capabilities of joint forces."[26] As the unmanned force consumes the battlespace the nature of war and operational art must change. The unmanned force and a move toward the unmanned battlespace are certain to occur. Dismissing it as fantasy is to misunderstand American society and its way of war. The unmanned battlespace will occur not only because it can, but, more importantly, because the American society will demand it through cries for security without the losses traditionally associated with obtaining security. When the unmanned force is fielded, it will require a new doctrine. The principles of war assessed and redefined in this article accomplish that first step.

Notes

1. The Korean Peninsula Conflict used as an example in this article is fictional and not necessarily the belief of the U.S. government to be stated intent of the North Korean Government. Any similarities between this example and U.S. or North Korean Governments' policies, either overt or covert, are coincidental.

2. Directorate for Operational Plans and Joint Force Development (Joint Staff J-7), *Joint Publication 1, Joint Warfare of the Armed Forces of the United States* (Washington DC: Joint Staff, Department of Defense, 2000), B1-B2.

3. Ibid., III-7.

4. Waghelstein, J. D., Colonel, USA (Ret.), "*The American Way of War*" (lecture provided at the Naval War College to the College of Naval Command and Staff on 18 November 2004).

5. *Joint Publication 1*, III-8.

6. Based on a comment made by J. D. Waghelstein, Colonel, USA (Ret.) during a seminar discussion with members of the College of Naval Command and Staff at the Naval War College on 7 February 2005.

7. *Joint Publication 1*, B-1.

8. *Joint Publication 1*, B-1.

9. Clausewitz, Carl Von, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton, New Jersey: Princeton University Press, 1989), 524.

10. *Joint Publication 1*, B-1.

11. Clausewitz, *On War*, 204 and amplified on 618.

12. *Joint Publication 1*, B-1.

13. *Joint Publication 1*, B-1.

14. Sun Tzu, The Art of War, trans. Samuel B. Griffith (Oxford: Oxford University Press, 1971), 79.

15. CNN, " New Videos Show Predators at Work in Iraq," CNN.com, Washington DC, 8 February 2005, http://cnn.com/2005/WORLD/meast/02/08/predator.video/index.html. The article specifically states that the Predator UAV pilots and sensor operators are controlling the aircraft from more than 7,000 miles away at Nellis AFB, NV. Additionally, the aircraft remain

airborne for more than 24 hours at a time while the pilots and sensor operators rotate in three-hour shifts.

16. *Joint Publication 1*, B-2.

17. Office of the Secretary of the Air Force, *Air Force Doctrine Document 1, Air Force Basic Doctrine* (Washington DC: Air Staff, 2003), 27. Office of the Secretary of the Army, *Army Field Manual 1, The Army* (Washington DC: Army Staff, 2001), 44. Office of the Secretary of the Navy, *Marine Corps Doctrinal Publication 1, Marine Corps Operations* (Washington DC: Naval Staff, 2001), 6-20. Office of the Secretary of the Navy, *Navy Doctrine Publication 1, Naval Warfare* (Washington DC: Naval Staff, 1994). Office of the Commandant of the Coast Guard, Coast *Guard Publication 1, U.S. Coast Guard: America's Maritime Guardian* (Washington DC: Coast Guard Staff, 2002), 5 and 55. All the service doctrine documents espouse some form of the tenet "centralized control and decentralized execution" whether specifically stated as such or in different terms.

18. *Joint Publication 1*, B-2.

19. Ibid.

20. Clark, Vernon, Admiral, Chief of Naval Operations, testimony before the House Armed Services Committee, internet streaming video on CSPAN (rtsp://cspanrm.fplive.net/cspan/project/ter/ter111704_military.rm at 2:06 to 2:10), 17 November 2004, Washington DC. During the hearing the CNO was questioned as to the potential for unmanned naval vessels "swarming" off of a mother ship and engaging an enemy at a distance. The CNO denied this situation would occur in the near future, however, he did allude to the fact the Navy was exploring the procurement and employment of such vessels in the future. The CNO also conceded that unmanned vessels were the war fighting platforms of the future.

21. Roach, Hon. James G., Secretary of the Air Force and Jumper, John P., General, Chief of Staff, United States Air Force, interviewed by CSPAN correspondent, transcript at Air Force Home Page (http://www.af.mil/news/story.asp?storyID=123007052), 24 February 2004, Washington DC. During this interview General Jumper, the strongest Air Force proponent of unmanned combat aerial vehicle development and employment, states that the future of aerial combat lies in the unmanned systems which will be able to persist over the battlespace for more than 24 hours and be able to refuel while in flight. General Jumper goes on to state that development is progressing and fielding of the systems will occur "at the right time". He did not expand further.

22. *Joint Publication 1*, B-2.

23. Clausewitz, *On War*, 84.

24. Vego, Milan, Operational Warfare (Newport, RI: Naval War College Publishing, 2000), 619-628.

25. Ibid., 621.

26. Ibid., 623.

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